What is claimed is:

1. A fabricated biofilm storage device for long term storage of biological material comprising:

optionally, a substrate having a contacting surface, and

a biologic material on the optional contacting surface and forming a stable film, wherein the film is stable at room temperature for at least 7 weeks.

2. The fabricated biofilm storage device of claim 1, wherein the stable film is stable for at least five months based on time dependent infection ability in the film state.

3. The fabricated biofilm storage device of claim 1, wherein the stable film is stable at room temperature for at least six months.

4. The fabricated biofilm storage device of claim 1, wherein the substrate is present and chosen from the group consisting of Langmuir-Blodgett films, functionalized glass, germanium, silicon, a semiconductor material, PTFE, polycarbonate, mica, mylar, protein film, plastic, quartz, polystyrene, gallium arsenide, gold, silver, metal, metal alloy, fabric, mammalian tissue, and combinations thereof.

5. The fabricated biofilm storage device of claim 1, wherein the stable film is dry.

6. The fabricated biofilm storage device of claim 1, wherein the stable film is self-supporting.

7. The fabricated biofilm storage device of claim 1, wherein the stable film comprises, in addition to the biological material, one or more organic or inorganic molecules.

8. The fabricated biofilm storage device of claim 7, wherein an organic molecule is present and is chosen from the group consisting of carbon, single stranded nucleic acid, double stranded nucleic acid, peptide, protein, antibody, enzyme, steroid, drug, chromophore, conducting polymer, vaccine, and combinations, thereof.

9. The fabricated biofilm storage device of claim 7, wherein an organic molecule is present and is chosen from the group consisting of protein, enzyme, drug, and combinations thereof.

10. The fabricated biofilm storage device of claim 7, wherein an inorganic molecule is present and is chosen from the group consisting of indium tin oxide, a doping agent,

metal, metal alloy, mineral, semiconductor, and combinations thereof.

11. The fabricated biofilm storage device of claim 1, wherein the biologic material is chosen from the group consisting of a virus, bacteriophage, bacteria, peptide, protein, antibody, enzyme, amino acid, steroid, drug, carbohydrate, lipid, chromophore, single-stranded or double-stranded nucleic acid, vaccine, and chemical modifications thereof.

12. The fabricated biofilm storage device of claim 1, wherein the biological material is a virus or bacteriophage.

13. The fabricated biofilm storage device of claim 1, wherein the biological material is a bacteria.

14. The fabricated biofilm storage device of claim 1, wherein the biological material is a peptide or protein.

15. The fabricated biofilm storage device of claim 1, wherein the biological material is an antibody or enzyme.

16. The fabricated biofilm storage device of claim 1, wherein the biologic material self-assembles to form a uniform thin film.

17. The fabricated biofilm storage device of claim 1, wherein the biological material is anisotropic.

18. The fabricated biofilm storage device of claim 1, wherein the biological material further comprises a vaccine.

19. The fabricated biofilm storage device of claim 1, wherein at least two biological materials are present.

20. The fabricated biofilm storage device of claim 1, wherein the biological material further comprises an inorganic nanoparticle.

21. The fabricated biofilm storage device of claim 7, wherein the one or more organic or inorganic molecules are preincubated with the biologic material.

22. The fabricated biofilm storage device of claim 21, wherein preincubation permits the formation of nanocrystals.

23. The fabricated biofilm storage device of claim 1, wherein the film exhibits biologic, optical, electrical, magnetic properties, or combinations thereof.

24. The fabricated biofilm storage device of claim 1, wherein the stable film is used in diagnosis, screening, analysis, testing, information gathering, data processing,

drug discovery, microelectronics, optics, data storage, research, or combinations thereof.

25. The fabricated biofilm storage device of claim 1, wherein the structure of the stable film is controlled by solvent concentration, magnetic field, electric field, optics, and combinations, thereof.

26. The fabricated biofilm storage device of claim 1, wherein the biologic material is genetically engineered.

27. The fabricated biofilm storage device of claim 1, wherein the biofilm is stabilized with the addition of a storage solution.

28. The fabricated biofilm storage device of claim 1, wherein the biofilm is stabilized with the addition of a sugar-containing storage solution.

29. The fabricated biofilm storage device of claim 1, wherein the stability is monitored with use of light properties.

30. A method of fabricating a biofilm storage device comprising the steps of:

applying a biologic material to a substrate with a contacting surface, wherein optionally the contacting surface promotes uniform alignment of the biologic material on the

contacting surface; and

allowing the formation of a stable film which is stable at room temperature for at least seven weeks.

31. The method of claim 30, wherein the stable film is dry.

32. The method of claim 30, wherein the biological material is a combinatorial library.

33. The method of claim 30, wherein the biologic material self assembles to form a thin film about 25 microns or less.

34. The method of claim 30, wherein uniform alignment is controlled by solvent concentration, magnetic field, electric field, optics, or combinations, thereof.

35. The method of claim 30, wherein fabricating the biofilm storage device is reversible.

36. The method of claim 30, wherein the biologic material is chosen from the group consisting of a virus, bacteriophage, bacteria, peptide, protein, antibody, enzyme, amino acid, steroid, drug, carbohydrate, lipid, chromophore, single-stranded or double-stranded nucleic acid, vaccine, and chemical modifications thereof.

37. The method of claim 30, wherein the biological material is a virus or bacteriophage.

38. The method of claim 30, wherein the biological material is an anisotropic particle.

39. The method of claim 30, wherein the biological material is a bacteria.

40. The method of claim 30, wherein the biological material is a peptide or protein.

41. The method of claim 30, wherein at least two biological materials are applied.

42. The method of claim 30, wherein the biological material is an antibody or enzyme.

43. The method of claim 30, wherein the biologic material is layered with an organic compound, inorganic compound, and combinations thereof.

44. The method of claim 30, further comprising the step of applying a storage solution prior to allowing the formation of a stable film.

45. The method of claim 30, further comprising the step of applying a sugar-containing storage solution prior to allowing the formation of a stable film.

46. A kit for fabricating a biofilm storage device comprising:

a container; and

a storage film comprising a biologic material which is stable at room temperature for at least 7 weeks.

47. The kit of claim 46, further comprising a storage solution to be applied to the film.

48. The kit of claim 46, further comprising a sugar-containing storage solution to be applied to the film.

49. The kit of claim 46, further comprising a solvent that promotes film formation.

50. The kit of claim 46, wherein the thin film stores high-density information at room temperature.

51. The kit of claim 50, wherein the high density information is used in diagnosis, screening, analysis, testing, information gathering, data processing, microelectronics, optics, research, or combinations, thereof.

52. The kit of claim 50, wherein the high-density information is stable and chosen from the group consisting of biologic, optical, electrical, magnetic, or combinations, thereof.

53. A hybrid fabricated film storage device comprising:

a substrate comprising a surface; and

a biologic material applied to the surface to form a biologically stable thin film, wherein the film further comprises an inorganic material.

54. The hybrid fabricated film storage device of claim 53, wherein the substrate is further chosen from the group consisting of Langmuir-Bodgett films, functionalized glass, germanium, silicon, a semiconductor material, PTFE, polycarbonate, mica, mylar, plastic, quartz, polystyrene, gallium arsenide, gold, silver, metal, metal alloy, synthetic fabric, and combinations thereof.

55. The hybrid fabricated film storage device of claim 53, wherein the biologically stable thin film is dry.

56. The hybrid fabricated film storage device of claim 53, the substrate further comprises a thin layer which contacts the film of biological material.

57. The hybrid fabricated film storage device of claim 53, wherein film further comprises one or more organic

molecules chosen from the group consisting of carbon, single stranded nucleic acid, double stranded nucleic acid, peptide, protein, antibody, enzyme, steroid, drug, chromophore, conducting polymer, or combinations, thereof.

58. The hybrid fabricated film storage device of claim 53, wherein the inorganic material is chosen from the group consisting of indium tin oxide, a doping agent, metal, metal alloy, mineral, or combinations, thereof.

59. The hybrid fabricated film storage device of claim 53, wherein the one or more organic or inorganic molecules are preincubated with the biologic material.

60. The hybrid fabricated film storage device of claim 59, wherein preincubation permits the formation of nanocrystals.

61. The hybrid fabricated film storage device of claim 56, wherein the biologic material is chosen from the group consisting of virus, bacteriophage, bacteria, peptide, protein, amino acid, steroid, drug, chromophore, single-stranded or double-stranded nucleic acid, vaccine, and chemical modifications thereof.

62. The device of claim 56, wherein the biological material is a virus.

63. The device of claim 56, wherein the biological material is a bacteriophage.

64. The device of claim 56, wherein the biological material is bacteria.

65. The device of claim 56, wherein the biological material is peptide or protein.

66. The device of claim 56, wherein the biological material is an antibody.

67. The hybrid fabricated film storage device of claim 56, wherein the biologic material self-assembles to form a uniform thin film.

68. The hybrid fabricated film storage device of claim 56, wherein the biologically stable thin film exhibits biologic, optical, electrical, and magnetic properties, or combinations thereof.

69. The hybrid fabricated film storage device of claim 56, wherein the biologically stable thin film is used in diagnosis, screening, analysis, testing, information gathering, data processing, drug discovery, microelectronics, data storage, research, or combinations thereof.

70. The hybrid fabricated film storage device of claim 56, wherein formation of the biologically stable thin film is

controlled by solvent concentration, magnetic field, electric field, optics and combinations thereof.

71. The hybrid fabricated film storage device of claim 56, wherein the biologic material is genetically engineered.

72. The hybrid fabricated film storage device of claim 56, wherein the storage device is stabilized by applying a storage solution to the biologically stable thin film.

73. The hybrid fabricated film storage device of claim 56, wherein the storage device is stabilized by applying a sugar-containing storage solution to the biologically stable thin film.

74. A viral film fabricated for use as a storage device comprising phage particles in a stable film, wherein the film is stable at room temperature for at least 7 weeks.

75. The viral film of claim 74, wherein the stable film is on the surface of a substrate.

76. The viral film of claim 74, wherein the stable film comprises phage particles of a phage display library.

77. The viral film of claim 74, wherein the film comprises micron scale repeating patterns that continue to the centimeter scale.

78. The viral film of claim 74, wherein the film comprises phage particles of a phage display library which preserves ability to infect.

79. The viral film of claim 74, wherein the film has a stable time-to-infection in terms of titer numbers for at least seven weeks.

80. The viral film of claim 74, wherein the film has a stable time-to-infection in terms of titer numbers for at least five months.

81. The viral film of claim 74, wherein the film retains its ability to be greater than 95% infectious for at least 5 months.

82. The viral film of claim 74, wherein the film stores high-density engineered DNA and protein information.

83. The viral film of claim 74, wherein the film is a thin film, having a thickness of about 25 microns or less.

84. The viral film of claim 74, wherein the film is a dry thin film.

85. The viral film of claim 74, wherein the film stores at least 4 X 10^{13} phage per square centimeter.

86. The viral film of claim 74, further comprising inorganic materials in combination with the phage particles.

87. The viral film of claim 74, further comprising inorganic nanoparticles in combination with the phage particles.

88. The viral film of claim 74, wherein the phage particles are selected to provide for specific binding.

89. The viral film of claim 74, wherein the phage particles are selected to provide for specific binding to inorganic nanoparticles, and phage particles are bound to the inorganic nanoparticles.

90. The viral film of claim 74, wherein the film comprises phage particles of a phage display library, wherein the phage particles are selected to provide for specific binding to inorganic nanoparticles, and phage particles are bound to the inorganic nanoparticles.

91. The viral film of claim 74, wherein the film comprises phage particles of a phage display library, wherein the phage particles are selected to provide for specific binding to biological molecules, and phage particles are bound to the biological molecules.

92. The viral film according to claim 74, wherein the film has a stable time-to-infection in terms of titer numbers for at least seven weeks.

93. Use of the viral film of claim 74 as a storage device in drug discovery, in high throughput screening, or in diagnosis of one or more pathological conditions.

94. A method of forming a viral film comprising:

preparing a concentrated suspension of viral phage particles in a solvent;

removing solvent so that the phage particles form a film under conditions wherein the film is stable at room temperature for at least 7 weeks.

95. The method according to claim 94, wherein the suspension is a liquid crystalline suspension of viral phage particles in the solvent.

96. The method according to claim 94, wherein the substrate is a solid substrate.

97. The method according to claim 94, wherein the film comprises phage particles of a phage display library.

98. The method of claim 94, wherein the film comprises micron scale repeating patterns that continue to the centimeter scale.

99. The method of claim 94, wherein the film comprises phage particles of a phage display library which preserves ability to infect.

100. The method of claim 94, wherein the film has a stable time-to-infection in terms of titer numbers for at least seven weeks.

101. The method of claim 94, wherein the film has a stable time-to-infection in terms of titer numbers for at least five months.

102. The method of claim 94, wherein the film retains its ability to be greater than 95% infectious for at least 5 months.

103. The method of claim 94, wherein the film stores high-density engineered DNA and protein information.

104. The method of claim 94, wherein the film is a thin film.

105. The method of claim 94, wherein the film is a dry thin film.

106. The method of claim 94, wherein the film stores at least 4 X 10^{13} phage per square centimeter.

107. The method of claim 94, wherein the film further comprises inorganic compounds in combination with the phage particles.

108. The method of claim 94, wherein the film further comprises inorganic nanoparticles in combination with the phage particles, and the film retains its ability to be greater than 95% infectious for at least 5 months.

109. The method of claim 94, wherein the phage particles are selected phage particles to provide for specific binding.

110. The method of claim 94, wherein the phage particles are selected phage particles to provide for specific binding to inorganic nanoparticles, and the phage particles are bound to the inorganic nanoparticles.

111. The method of claim 94, wherein the phage particles are selected phage particles to provide for specific binding to biological molecules, and the phage particles are bound to the biological molecules.

112. A self-supporting film for use as a storage device comprising one or more biological materials, wherein the film is stable for at least six months.

113. The film according to claim 111, wherein the one or more biological materials is self-assembled to form a thin film on the contacting surface of a substrate.

114. The film according to claim 111, wherein the film is liquid crystalline.

115. The film according to claim 111, wherein the biological material is a virus.

116. The film according to claim 111, wherein the biological material is a bacteriophage.

117. The film according to claim 111, wherein the biological material is an enzyme.

118. The film according to claim 111, wherein the biological material is a peptide or protein.

119. The film according to claim 111, wherein the film further comprises an inorganic nanoparticle.

120. The film according to claim 111, wherein the film further comprises an inorganic nanoparticle which is specifically bound to the biological material.

121. The film according to claim 111, wherein the biological material is a peptide.

122. A method for improving the stability and long term activity of a biofilm storage device comprising the step of including a storage solution in the biofilm storage device which improves the stability and long term activity of the biofilm storage device.

123. The method according to claim 122, wherein the storage solution comprises sugar.

124. The method according to claim 122, wherein the storage device comprises an enzyme.

125. The method according to claim 122, wherein the storage devices comprises an enzyme and a virus.

126. A method to visualize the structure and function of a biological material used as a biofilm storage device, comprising the step of monitoring light properties of the biological material.

127. The method of claim 126, wherein the light-emitting molecule is a protein.

128. The method of claim 126, wherein the light properties are monitored by confocal microscopy.

129. The method of claimi 126, wherein the light-emitting molecules are fluorescent.

130. A method of forming viral thin films for a storage device which retain the ability of the viral particles to infect a bacterial host, comprising the step of removing solvent from a concentrated suspension of viral particles to form the viral thin film on a substrate, wherein the viral particles retain infecting ability for a bacterial host based on measurement of titer numbers after at least seven weeks.

131. The method according to claim 130, wherein the infecting ability is based on measurement of titer numbers after at least five months.

132. The method according to claim 130, wherein the viral particles form epitaxial layer domains on the substrate.

133. The method according to claim 130, wherein the thin film stores at least 4 X 10^{13} phage per square centimeter.

134. The method according to claim 130, wherein the thin film stores at least 7200 times 4 X 10^{13} protein units per square centimeter.

135. The method according to claim 130, wherein the viral particles comprise a filamentous phage virus.

136. The method according to claim 130, wherein the viral particles before film formation comprise a genetically engineered phage library, and the library information is

preserved in film form.

137. The method according to claim 130, wherein the viral particles are designed to provide the film with specific binding properties so that the film can be a storage device for input and output of information.

138. A storage device comprising liquid crystalline viral film comprising anisotropic viral particles which are in the chiral smectic C phase.

139. The storage device according to claim 138, wherein the viral particles are a phage display library.

140. A storage device according to claim 138, wherein the viral particles are genetically engineered.

141. A storage device according to claim 138, wherein the viral particles are selected to specifically bind to an organic or inorganic compound.

142. A storage device according to claim 138, wherein the film has a thickness of about one micron to about 25

microns.

143. A storage device according to claim 138, wherein the film further comprises inorganic nanoparticles.

144. A storage device according to claim 138, wherein the film further comprises a stabilization agent.

145. A storage device according to claim 138, wherein the film further comprises a biomaterial.

146. A storage device according to claim 138, wherein the film further comprises a biomaterial and inorganic nanoparticles.

147. A method of making a storage device comprising the step of casting a film of viral particles under concentration conditions which provide for a chiral smectic C phase in the film.

148. The method acccording to claim 147, wherein the concentration of viral particles is at least about 1 mg/mL.

149. The method according to claim 147, wherein the concentration of viral partilcles is sufficiently high to provide a self-supporting film.

150. A storage device comprising a viral film which has been selected to bind streptavidin protein units.

151. The storage device according to claim 150, wherein the viral film further comprises metallic nanoparticles.

152. The storage device according to claim 150, wherein the viral film further comprises fluorescent molecules.

153. The storage device according to claim 150, wherein the viral film further comprises fluorescent protein.

154. The storage device according to claim 150, wherein the film is liquid crystalline.

155. The storage device according to claim 150, wherein the film further comprises a stabilization agent.

156. A method of forming a storage device comprising providing a phage display library and by panning to select phage which specifically bind to streptavidin.

157. The method according to claim 156, further comprising the step of binding the selected phage to an inorganic nanoparticle having streptavidin units.

158. The method according to claim 156, further comprising the step of binding the selected phage to a fluorescent compound having streptavidin units.

159. The method according to claim 156, further comprising the step of binding the selected phage to a fluorescent protein having streptavidin units.